



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,010	12/08/2003	Yugo Koyama	117659	9135

25944 7590 09/22/2005  
OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

SHINGLETON, MICHAEL B

ART UNIT PAPER NUMBER

2817

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/729,010

Applicant(s)

KOYAMA ET AL.

Examiner

Michael B. Shingleton

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 4, 6-10, 12-22, 24, 25, 27-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 11, 23, 26 and 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/03, 03/04, 06/05, 9/05</u> | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2817

### DETAILED ACTION

Applicant's election with traverse of Group I along with Species I directed toward Figure 2 in the reply filed on 8-17-2005 is acknowledged. The traversal is on the ground(s) that applicant believes that "the search and examination of the entire application could be made without serious burden". This is not found persuasive because as indicated in the restriction requirement Groups I and II have different classifications which would present a serious burden on the examiner. Also there are eleven different species and the search for each of these species would present a serious burden on the examiner. The non-obvious variants between each of the species present a burden in both search and examination. Also note that MPEP 808.01(a) recites that "[s]ince the claims are directed to independent inventions, restriction is proper pursuant to 35 U.S.C. 121, and it is not necessary to show a separate status in the art or separate classification". Applicant's arguments are also not found persuasive for applicant has not traversed the election of species requirement on the grounds that the species are not patentably distinct.

The requirement is still deemed proper and is therefore made FINAL.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the mounting board must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3, 23, 26 and 32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 11, and 12 of copending Application No. 10/735,676. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '676 application recites the broad subject matter of the claims of the instant application plus additional subject matter. The issuance of the claims of the '676 application would thereby provide coverage for the subject matter of the instantly claimed invention. However, the claims of the two applications utilizes different terminology for the same subject matter. For example the piezoelectric oscillator claimed in the instant application recites one or more lead frames wherein the terminals of these lead frame(s) are "arrayed in multiple tiers" (layers) that are "in a direction substantially perpendicular to a main plane of the lead frame". The claims of the '676 application recites a first and a second lead frame wherein the "end portions" i.e. terminals are bent in a direction receding the first package for the first lead frame and are bent in a direction approaching the first package for the second lead frame. The claims of the instant application recites that the IC or oscillating circuit element is mounted to one lead frame whereas the claims of the '676 application recites that the oscillating circuit element or IC is connected to a lead frame. The broad term connected includes the connection of mounting. Claims '676 do fail to recite that the device is sealed in resin. The claims of the '676 application recites that the second package is molded out of resin. However, sealing an IC or circuit device in resin so as to protect the circuit from the outside environment is conventionally known in the art. Thus it would have been obvious to seal the device as claimed in the '676 application in resin to provide protection for the device as is well-known in the art. One of ordinary skill would have been motivated to make the combination so as to seal the device. IC's are well-known to save space. Thus the forming of the oscillating circuit via an IC would have been obvious to one of ordinary skill in the art so as to save space as is conventionally known to do so. Therefore the claims of the '676 does not present for a patentable distinction over the claims of the instant application for the addition of an IC for the oscillating circuit to the '676 claimed invention would have been obvious to one of ordinary skill in the art. Also the added limitation of the use of "lids" to seal the package as claimed by the '676 application likewise would have been obvious to one of ordinary skill in the art at the time the invention was made because the use of lids is conventionally known to provide a seal for a semiconductor package. One of ordinary skill in the art would have been motivated to provide the claimed invention with a lid since this is an art recognized equivalent way to seal a "package".

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3, 23, 26 and 32 directed to an invention not patentably distinct from claims 1, 2, 11, and 12 of commonly assigned application number 10/735,676. Specifically, Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '676 application recites the broad subject matter of the claims of the instant application plus additional subject matter. The issuance of the claims of the '676 application would thereby provide coverage for the subject matter of the instantly claimed invention. However, the claims of the two applications utilizes different terminology for the same subject matter. For example the piezoelectric oscillator claimed in the instant application recites one or more lead frames wherein the terminals of these lead frame(s) are "arrayed in multiple tiers" (layers) that are "in a direction substantially perpendicular to a main plane of the lead frame". The claims of the '676 application recites a first and a second lead frame wherein the "end portions" i.e. terminals are bent in a direction receding the first package for the first lead frame and are bent in a direction approaching the first package for the second lead frame. The claims of the instant application recites that the IC or oscillating circuit element is mounted to one lead frame whereas the claims of the '676 application recites that the oscillating circuit element or IC is connected to a lead frame. The broad term connected includes the connection of mounting. Claims '676 do fail to recite that the device is sealed in resin. The claims of the '676 application recites that the second package is molded out of resin. However, sealing an IC or circuit device in resin so as to protect the circuit from the outside environment is conventionally known in the art. Thus it would have been obvious to seal the device as claimed in the '676 application in resin to provide protection for the device as is well-known in the art. One of ordinary skill would have been motivated to make the combination so as to seal the device. IC's are well-known to save space. Thus the forming of the oscillating circuit via an IC would have been obvious to one of ordinary skill in the art so as to save space as is conventionally known to do so. Therefore the claims of the '676 does not present for a patentable distinction over the claims of the instant application for the addition of an IC for the oscillating circuit to the '676 claimed invention would have been obvious to one of ordinary skill in the art. Also the added limitation of the use of "lids" to seal the package as claimed by the '676 application likewise would have been obvious to one of ordinary skill in the art at the time the invention was made because the use of lids is conventionally known to provide a seal for a semiconductor package. One of ordinary skill in the art would have been motivated to provide the claimed invention with a lid since this is an art recognized equivalent way to seal a "package".

Claims 1-3, 11, 23, 26 and 32 directed to an invention not patentably distinct from claim 1-12 of commonly assigned Patent number 6,917,142. Specifically, although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '142 Patent recites the broad subject matter of the claims of the instant application plus additional subject matter. For example the piezoelectric oscillator claimed in the instant application recites one or more lead frames wherein the terminals of these lead frame(s) are "arrayed in multiple tiers" (layers) that are "in a direction substantially perpendicular to a main plane of the lead frame". The claims of the '142 Patent recites that there are two lead frames wherein the first lead frame is bent away from the second package and the second lead frame is bent in a direction toward the second package and thus the terminals are arrayed in multiple tiers. The first connection terminal of the '142 Patent is recited as being a "mounting terminal" and thus is fully capable of mounting to a mounting board. The first package has the oscillator circuit but the '142 Patent fails to call this an IC. However, similar to above IC's are well-known to save space. Thus the forming of the oscillating circuit via an IC would have been obvious to one of ordinary skill in the art so as to save space as is conventionally known to do so. The claims of the '142 Patent recites that a molding resin is used and that the space between the first package and the second package is filled with a good thermal conductor but the claims do not exactly say that the device is sealed with resin. However, sealing an IC or circuit device in a good thermal conducting resin so as to protect the circuit from the outside environment is conventionally known in the art. Thus it would have been obvious to seal the device as claimed in the '142 Patent in a good thermal conducting resin to provide protection for the device as is well-known in the art. One of ordinary skill would have been motivated to make the combination so as to seal the device. . Also added limitation of the use of "lids" to seal the package as claimed by the '142 Patent likewise would have been obvious to one of ordinary skill in the art at the time the invention was made because the use of lids is conventionally known to provide a seal for a semiconductor package. One of ordinary skill in the art would have been motivated to provide the claimed invention with a lid since this is an art recognized equivalent way to seal a "package".

Claims 1-3, 11, 23, 26 and 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,917,142. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '142 Patent recites the broad subject matter of the claims of the instant application plus additional subject matter. For example the piezoelectric oscillator claimed in the instant application recites one or more lead frames wherein the terminals of these lead frame(s) are "arrayed in multiple tiers" (layers) that

are “in a direction substantially perpendicular to a main plane of the lead frame”. The claims of the ‘142 Patent recites that there are two lead frames wherein the first lead frame is bent away from the second package and the second lead frame is bent in a direction toward the second package and thus the terminals are arrayed in multiple tiers. The first connection terminal of the ‘142 Patent is recited as being a “mounting terminal” and thus is fully capable of mounting to a mounting board. The first package has the oscillator circuit but the ‘142 Patent fails to call this an IC. However, similar to above IC’s are well-known to save space. Thus the forming of the oscillating circuit via an IC would have been obvious to one of ordinary skill in the art so as to save space as is conventionally known to do so. The claims of the ‘142 Patent recites that a molding resin is used and that the space between the first package and the second package is filled with a good thermal conductor but the claims do not exactly say that the device is sealed with resin. However, sealing an IC or circuit device in a good thermal conducting resin so as to protect the circuit from the outside environment is conventionally known in the art. Thus it would have been obvious to seal the device as claimed in the ‘142 Patent in a good thermal conducting resin to provide protection for the device as is well-known in the art. One of ordinary skill would have been motivated to make the combination so as to seal the device. . Also added limitation of the use of “lids” to seal the package as claimed by the ‘142 Patent likewise would have been obvious to one of ordinary skill in the art at the time the invention was made because the use of lids is conventionally known to provide a seal for a semiconductor package. One of ordinary skill in the art would have been motivated to provide the claimed invention with a lid since this is an art recognized equivalent way to seal a “package”.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned applications/Patents, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kikushima 5,912,592 (Kikushima).

Figure 26(b) and the relevant text of Kikushima discloses a piezoelectric oscillator and housing for such having a plurality of leads formed by one or more lead frames(32, and 38a and 36) and terminals formed on the leads of the one or more lead frames (32, and 38a and 36) arrayed in “tiers” in a direction substantially perpendicular to the main plane of the lead frames. The paragraph bridging columns 2 and 3 of Kikushima clearly recites that the piezoelectric oscillator is to be part of electronic equipment. Note that a lead frame is just a metallization. Thus 32 of Kikushima could constitute a lead frame and not that the contact to the “bottom” of the IC element is a terminal. The metalizations 36 and 38a can constitute a lead frame and the place where the bonding wires attach are the terminals of this lead frame. Note that the lead frame terminals of 36 and 38a are “tiered” i.e. they are at a different level than the terminal of the lead frame 32. Note that lead 38a has at least on terminal that connects to the piezoelectric resonator 53 which his called “connectin terminals” by the claims. No details of the mounting board is given and the mounting board is not shown in the Figures of the instant application. This the terminals like 77 of Kikushima that are to be used in a socket are the mounting terminals. Note that the socket structure would constitute a mounting board. The resonator is sealed via lid 39.

Claims 1, 2 and 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Koichi JP 2002-330027 (Koichi) of record.

Figure 1 and the relevant text of Koichi discloses a piezoelectric oscillator and electronic device incorporating the oscillator. Note that the piezoelectric oscillator is for use in a “cellular phone” a well known type of electronic device. The piezoelectric oscillator of Koichi includes a plurality of leads 17 wherein terminals are formed. Note that Koichi is silent on whether these leads are from a plurality of lead frames or a single lead frame. One set of terminals are formed by the bent up (erected) leads and forms “connection terminals” for connection to the piezoelectric resonator structure as is clearly illustrated. The other terminals or mounting terminals are bent downward (Also called erected by applicant.) so as to form mounting terminals or pads (Like 17b) that is fully capable of being mounted on



a mounting board. The piezoelectric resonant structure of Koichi is formed in a sealed package like that of Figure 6 of Koichi and as noted above this sealed package is mounted to the connection terminals. The oscillator circuit 4 is formed in the IC chip 6 and is mounted on the lead frame(s) as is clearly illustrated. The lead frame and the IC chip is sealed in an resin package 18 such that the principal surface for the mounting terminals are exposed outward along the sideface of these mounting terminals (Claim 11). The bending up and down of the leads to form terminals causes these terminals to be "arrayed in tiers in a direction substantially perpendicular to a main plane of the lead frame as is clearly illustrated by Koichi. Element 14 is also shown as exposed and these terminals can be called "adjusting terminals" and are fully capable of being used to adjust the properties and/or confirm the conduction between the resonator and the connection terminals. Koichi also clearly illustrates the lid 9 (Called covering by Koichi.) as having the upper face thereof externally exposed. As noted above Koichi is silent on whether or not the leads 17 are from a single lead frame or a plurality of lead frames.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 11, 23, 26 and 32 are rejected under 35 U.S.C. 103(a) as being obvious over Koyama et al. 6,917,142 (Koyama).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). Although the conflicting claims are not identical, they are not

patentably distinct from each other because the claims of the '142 Patent recites the broad subject matter of the claims of the instant application plus additional subject matter. For example the piezoelectric oscillator claimed in the instant application recites one or more lead frames wherein the terminals of these lead frame(s) are "arrayed in multiple tiers" (layers) that are "in a direction substantially perpendicular to a main plane of the lead frame". The claims of the '142 Patent recites that there are two lead frames wherein the first lead frame is bent away from the second package and the second lead frame is bent in a direction toward the second package and thus the terminals are arrayed in multiple tiers. The first connection terminal of the '142 Patent is recited as being a "mounting terminal" and thus is fully capable of mounting to a mounting board. The first package has the oscillator circuit but the '142 Patent fails to call this an IC. However, similar to above IC's are well-known to save space. Thus the forming of the oscillating circuit via an IC would have been obvious to one of ordinary skill in the art so as to save space as is conventionally known to do so. The claims of the '142 Patent recites that a molding resin is used and that the space between the first package and the second package is filled with a good thermal conductor but the claims do not exactly say that the device is sealed with resin. However, sealing an IC or circuit device in a good thermal conducting resin so as to protect the circuit from the outside environment is conventionally known in the art. Thus it would have been obvious to seal the device as claimed in the '142 Patent in a good thermal conducting resin to provide protection for the device as is well-known in the art. One of ordinary skill would have been motivated to make the combination so as to seal the device. . Also added limitation of the use of "lids" to seal the package as claimed by the '142 Patent likewise would have been obvious to one of ordinary skill in the art at the time the invention was made because the use of lids is conventionally known to provide a seal for a semiconductor package. One of ordinary skill in the art would have been motivated to provide the claimed invention with a lid since this is an art recognized equivalent way to seal a "package".

Claims 3, 5, 11, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koichi JP 2002-330027 (Koichi) of record in view of Waki et al. 5,463,253 (Waki).

Figure 1 and the relevant text of Koichi discloses a piezoelectric oscillator and electronic device incorporating the oscillator. Note that the piezoelectric oscillator is for use in a "cellular phone" a well known type of electronic device. The piezoelectric oscillator of Koichi includes a plurality of leads 17 wherein terminals are formed. Note that Koichi is silent on whether these leads are from a plurality of lead frames or a single lead frame. One set of terminals are formed by the bent up (erected) leads and forms "connection terminals" for connection to the piezoelectric resonator structure as is clearly illustrated. The other terminals or mounting terminals are bent downward (Also called erected by

applicant.) so as to form mounting terminals or pads (Like 17b) that is fully capable of being mounted on a mounting board. The piezoelectric resonant structure of Koichi is formed in a sealed package like that of Figure 6 of Koichi and as noted above this sealed package is mounted to the connection terminals. The oscillator circuit 4 is formed in the IC chip 6 and is mounted on the lead frame(s) as is clearly illustrated. The lead frame and the IC chip is sealed in an resin package 18 such that the principal surface for the mounting terminals are exposed outward along the side-face of these mounting terminals (Claim 11). The bending up and down of the leads to form terminals causes these terminals to be "arrayed in tiers in a direction substantially perpendicular to a main plane of the lead frame as is clearly illustrated by Koichi. Element 14 is also shown as exposed and these terminals can be called "adjusting terminals" and are fully capable of being used to adjust the properties and/or confirm the conduction between the resonator and the connection terminals. Koichi also clearly illustrates the lid 9 (Called covering by Koichi.) as having the upper face thereof externally exposed. As noted above Koichi is silent on whether or not the leads 17 are from a single lead frame or a plurality of lead frames.

Figure 10 of Waki clearly illustrates that in the case of where the leads are bent up and bent down it is advantage to utilize two lead frames. One lead frame bent up and one bent down. This clearly allows for easier formation of the bent leads for it is easier to bend the leads in only one direction in single lead frame rather than being the leads in both directions in a single lead frame. Also the use of two lead frames to form the bend up and bent down terminals is an art recognized equivalent to the use of a single lead frame wherein all the leads are bent up and down. Therefore, because there two lead frame structures were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute two lead frames with one having terminals bent upward and the other lead frame having terminals bent downward for the lead frame structure of Koichi. One of ordinary skill in the art would have been motivated to make the combination for it is easier to bent the leads of a single lead frame in one direction rather than in two direction and thus more accurate bends can be had by using two lead frames each bent in a respective direction as taught by Waki.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

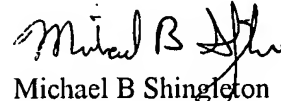
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 and after July 15, 2005 the fax number will be 571-273-8300. Note that old fax number (703-872-9306) will be service until September 15, 2005.

Art Unit: 2817

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS

August 28, 2005

  
Michael B Shingleton  
Primary Examiner  
Group Art Unit 2817